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[Page 49339-49343]
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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-25584; Directorate Identifier 2000-NE-62-AD; Amendment 39-14733; AD 2006-17-12]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce plc RB211 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), that is applicable to Rolls-Royce plc (RR) models RB211-535E4-37, RB211-535E4–37, RB211-535C-37, RB211-535E4-B-75, RB211-535E4-C, and RB211-22B-02 turbofan engines. That AD currently requires inspecting certain high pressure (HP) turbine discs, manufactured between 1989 and 1999, for cracks in the rim cooling air holes, and, if necessary, replacing the discs with serviceable parts. The manufacturer identified reaming-induced machining anomalies (RIMA) as the cause for the cracking. This amendment requires the same inspections, and reduces the compliance times for eddy current inspection (ECI) for the RR RB211-22B-02 engines. This amendment results from the manufacturer reducing their recommended compliance times for inspections on RB211-22B-02 engines. We are issuing this AD to prevent possible disc failure, which could result in an uncontained engine failure and damage to the airplane.

DATES: This AD becomes effective September 27, 2006. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of September 27, 2006.

The Director of the Federal Register approved the incorporation by reference of RR Alert Service Bulletin (ASB) No. RB211-72-AE651, dated November 22, 2004, as of January 13, 2005 (69 FR 77881, December 29, 2004) and RR Service Bulletin (SB) No. RB211-72-C877, Revision 1, dated March 7, 2001, listed in the AD, as of December 24, 2001 (66 FR 57859, November 19, 2001).

ADDRESSES: You can get the service information identified in this proposed AD from Rolls-Royce plc, PO Box 31, Derby, England; telephone: 011 44 1332-249428, fax: 011 44 1332-249223.

You may examine the AD docket on the Internet at http://dms.dot.gov or in Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Ian Dargin, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; telephone (781) 238-7178, fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed airworthiness directive (AD). The proposed AD applies to RR models RB211-535E4-37, RB211-535E4-B-37, RB211-535C-37, RB211-535E4-B-75, and RB211-22B-02 turbofan engines. We published the proposed AD in the Federal Register on January 30, 2006 (71 FR 4832). That action proposed to reduce the inspection schedules required by AD 2004-26-03, for the high risk discs installed on model RB211-22B-02 engines.

Examining the AD Docket

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Offices between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

Comments

We provided the public the opportunity to participate in the development of this AD. We received no comments on the proposal or on the determination of the cost to the public.

Editorial Change To Add Background Information to the Summary

After we issued the NPRM, RR informed us that they identified reaming-induced machining anomalies (RIMA) as the cause for the cracking.

Docket Number Change

We are transferring the docket for this AD to the Docket Management System as part of our on-going docket management consolidation efforts. The new Docket No. is FAA-2006-25584. The old Docket No. became the Directorate Identifier, which is 2000-NE-62-AD. This final rule might get logged into the DMS docket, ahead of the proposed AD and comments received, as we are in the process of sending those items to the DMS.

Conclusion

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

We estimate that this AD will affect six RR RB211-22B engines installed on airplanes of U.S. registry. We also estimate that it will take about 4.0 work-hours per engine to perform the actions, and that the average labor rate is $65 per work-hour. There are no required parts. Based on these figures, we estimate the total cost of the AD to U.S. operators to be $1,560.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866;

(2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 as follows:

PART 39–AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing Amendment 39-13915 (69 FR 77881, December 29, 2004) and by adding a new airworthiness directive, Amendment 39-14733, to read as follows:

2006-17-12 Rolls-Royce plc: Amendment 39-14733. Docket No. FAA-2006-25584; Directorate Identifier 2000-NE-62-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective September 27, 2006.

Affected ADs

(b) This AD supersedes AD 2004-26-03, Amendment 39-13915.

Applicability

(c) This AD applies to Rolls-Royce plc (RR) models RB211-535E4-37, RB211-535E4-B-37, RB211-535C-37, RB211-535E4-B-75, RB211-535E4-C, and RB211-22B-02 turbofan engines with turbine discs having part numbers and serial numbers listed in the following Tables 1, 3, and 5 of this AD. These turbofan engines are installed on, but not limited to, Boeing 757, Tupolev Tu204, and Lockheed L-1011 series airplanes.

Unsafe Condition

(d) This AD results from the manufacturer reducing the inspection compliance times for the RB211-22B-02 turbofan engines. We are issuing this AD to prevent possible disc failure, which could result in an uncontained engine failure and damage to the airplane.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

Eddy Current Inspection for All Except Model RB211-22B-02 Engines

(f) For all except model RB211-22B-02 engines, do the following:

(1) Perform an eddy current inspection of the high pressure (HP) turbine discs listed in Table 1 of this AD, for cracks in the rim cooling air holes. Use paragraph 3. of the Accomplishment Instructions of RR Alert Service Bulletin (ASB) No. RB.211-72-AE651, dated November 22, 2004, to perform the eddy current inspection.

Table 1.–Affected HP Turbine Discs Using Compliance Schedule in Table 2

Part No.	Serial No.	Part No.	Serial No.
LK80623	CQDY6397	UL27681	LDRCZ12893
LK80623	CQDY6504	UL27681	LDRCZ12985
UL27680	CQDY6451	UL27681	LDRCZ13044
UL27680	CQDY6452	UL27681	LDRCZ13047
UL27680	CQDY6466	UL27681	LQDY6803
UL27680	CQDY6468	UL27681	LQDY6814
UL27680	CQDY6471	UL27681	LQDY6847
UL27680	CQDY6496	UL27681	LQDY6868
UL27680	CQDY6505	UL27681	LQDY6875
UL27680	CQDY6653	UL27681	LQDY6892
UL27680	CQDY6656	UL27681	LQDY6898
UL27680	CQDY6657	UL27681	LQDY6904
UL27680	CQDY6684	UL27681	LQDY6909
UL27680	CQDY6883	UL27681	LQDY6910
UL27681	CQDY6465	UL27681	LQDY9133
UL27681	LAQDY6002	UL27681	LQDY9574
UL27681	LAQDY6083	UL27681	LQDY9579
UL27681	LAQDY6087	UL27681	LQDY9672
UL27681	LDRCZ10247	UL27681	LQDY9770
UL27681	LDRCZ10277	UL27681	LQDY9783
UL27681	LDRCZ10318	UL27681	LQDY9786
UL27681	LDRCZ10335	UL27681	LQDY9900
UL27681	LDRCZ10430	UL27681	LQDY9902
UL27681	LDRCZ10531	UL27681	LQDY9929
UL27681	LDRCZ10750	UL27681	LQDY9957
UL27681	LDRCZ10899	UL27681	LQDY9982
UL27681	LDRCZ11616	UL27681	LQDY9992
UL27681	LDRCZ11720	UL27681	WGQDY90005
UL27681	LDRCZ11893		

(2) Use the compliance schedule in Table 2 of this AD.

Table 2.–Compliance Schedule for HP Turbine Discs Listed in Table 1

If Disc Cycles-Since-New (CSN) on October 8, 2004 are:	Then Eddy Current Inspect:
(i) 12,750 CSN or more.	Within 250 cycles-in-service (CIS) from October 8, 2004 or within 14,500 CSN, whichever occurs first.
(ii) Fewer than 12,750 CSN but 10,500 CSN or more.	Within 500 CIS from October 8, 2004.
(iii) Fewer than 10,500 CSN.	Before 11,000 CSN or at next shop visit after the effective date of this AD, whichever occurs first.

(3) On discs that pass inspection, use paragraph 3. of the Accomplishment Instructions of RR ASB No. RB.211-72-AE651, dated November 22, 2004, to permanently etch NMSB 72-AE651 onto the disc, adjacent to the part number.

(4) Perform an eddy current inspection of the HP turbine discs listed in Table 3 of this AD, for cracks in the rim cooling air holes. Use paragraph 3. of the Accomplishment Instructions of RR ASB No. RB.211-72-AE651, dated November 22, 2004, to perform the eddy current inspection.

Table 3.–Affected HP Turbine Discs Using Compliance Schedule in Table 4

Part No.	Serial No.
UL10323	CQDY6070 and higher
UL27680	All
UL27681	All
LK80622	LQDY6316 and higher
LK80623	CQDY5945 and higher
UL28267	All

(5) Use the compliance schedule in Table 4 of this AD.

Table 4.–Compliance Schedule for HP Turbine Discs Listed in Table 3

If Disc CSN on January 29, 2001 are:	Then Eddy Current Inspect:
(i) Fewer than 13,700 CSN.	Before reaching 14,500 CSN, or at the next shop visit after the effective date of this AD, whichever occurs first.
(ii) 13,700 CSN or more.	Before reaching one of the following, whichever occurs first after the effective date of this AD: (A) 15,300 CSN. (B) Within 800 CIS since January 29, 2001. (C) At next shop visit.

(6) For discs that pass inspection, use paragraph 3. of the Accomplishment Instructions of RR ASB No. RB.211-72-AE651, dated November 22, 2004, to permanently etch NMSB 72-AE651 onto the disc, adjacent to the part number.

Eddy Current Inspection for Model RB211-22B-02 Engines

(g) For model RB211-22B-02 engines, do the following:

(1) Perform an eddy current inspection of the HP turbine discs listed in Table 5 of this AD, for cracks in the rim cooling air holes. Use paragraph 3. of the Accomplishment Instructions of RR ASB No. RB.211-72-AE717, dated January 21, 2005, to perform the eddy current inspection.

Table 5.–Affected HP Turbine Discs in RR Model RB211-02 Turbofan Engines

Part No.	Serial No.
LK80622	LQDY6316 and higher
LK80623	CQDY5945 and higher
UL28267	All

(2) Use the compliance schedule in Table 6 of this AD.

Table 6.–Compliance Schedule for HP Turbine Discs Listed in Table 5

If Disc CSN on January 1, 2005 are:	Then Eddy Current Inspect:
(i) More than 9,000 CSN.	Within 500 CIS after January 1, 2005, but before 11,000 CSN, whichever is sooner.
(ii) More than 1,500, but fewer than 9,001 CSN.	Before exceeding 9,500 CSN, or at the next shop visit after the effective date of this AD, whichever occurs first.

(3) For discs that pass inspection, use paragraph 3. of the Accomplishment Instructions of RR ASB No. RB.211-72-AE717, dated January 21, 2005, to permanently etch NMSB 72-AE717 onto the disc, adjacent to the part number.

Other Conditions for All Engines

(h) Do not perform the actions of this AD to a disc until that disc has reached at least 1,500 CSN.

(i) Engines with an affected HP turbine disc at shop visit on the effective date of this AD and without the HP turbine rotor installed in the combustor outer case, must have the disc eddy current inspected before assembling the engine.

(j) Engines with an affected HP turbine disc at shop visit on the effective date of this AD with the HPT rotor installed in the combustor case need not have the disc eddy current inspected at this time.

(k) HP turbine discs previously eddy current inspected at fewer than 1,500 CSN must be inspected again using this AD.

(l) Replace cracked HP turbine discs with a serviceable disc.

Definition

(m) For the purpose of this AD, next shop visit is defined as the first shop visit opportunity when the HPT rotor is removed from the combustion case.

(n) For the purpose of this AD, a serviceable part is one with cyclic life remaining and either not listed in any of the preceding tables or one listed in a preceding table, but previously eddy current inspected and permanently etch marked with the Service Bulletin (SB) number NMSB 72-AE651 or NMSB 72-C877 on the disc.

Previous Credit

(o) Previous credit is allowed for the actions in this AD for HP turbine discs with 1,500 CSN or more that were eddy current inspected using applicable RR SB No. RB.211-72-C817, Revision 2, dated March 7, 2001, RR TSD 594-J, Overhaul Processes Manual, Task 70-00-00-200-223, or RR SB No. RB.211-72-C877, Revision 1, dated March 7, 2001.

Reporting Requirements

(p) For all except model RB211-22B-02 engines, report findings of the inspection using paragraph 3.E. of the Accomplishment Instructions of RR ASB RB.211-72-AE651, dated November 22, 2004. The Office of Management and Budget (OMB) has approved the reporting requirements specified in paragraph 3.E. of the Accomplishment Instructions of RR ASB RB.211-72-AE651, dated November 22, 2004, and assigned OMB control number 2120-0056.

(q) For model RB211-22B-02 engines, report findings of the inspection using paragraph 3.E. of the Accomplishment Instructions of RR ASB RB.211-72-AE717, dated January 21, 2005. The OMB has approved the reporting requirements specified in paragraph 3.E. of the Accomplishment Instructions of RR ASB RB.211-72-AE717, dated January 21, 2005, and assigned OMB control number 2120-0056.

Alternative Methods of Compliance

(r) The Manager, Engine Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Material Incorporated by Reference

(s) You must use the service information specified in Table 7 of this AD to perform the inspections required by this AD. The Director of the Federal Register approved the incorporation by reference of RR ASB RB.211-72-AE717, dated January 21, 2005, listed in Table 7 of this AD in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The incorporation by reference of RR ASB No. RB.211-72-AE651, dated November 22, 2004, was approved previously by the Director of the Federal Register as of January 13, 2005 (69 FR 77881, December 29, 2004). The incorporation by reference of RR SB No. RB.211-72-C877, Revision 1, dated March 7, 2001, was approved previously by the Director of the Federal Register as of December 24, 2001 (66 FR 57859, November 19, 2001). You can get a copy from Rolls-Royce plc, PO Box 31, Derby, England; telephone: 011 44 1332-249428, fax: 011 44 1332-249223, for a copy of this service information. You may review copies at the FAA, New England Region, Office of the Regional Counsel, 12 New England

Executive Park, Burlington, MA; or the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal-register/cfr/ibr-locations.html.

Table 7.–Incorporation by Reference

Service Bulletin	Page numbers	Revision	Date
RB.211-72-AE651 Total Pages – 7	All	Original	November 22, 2004
RB.211-72-AE717 Total Pages – 8	All	Original	January 21, 2005
RB.211-72-C877 Total Pages – 5	All	1	March 7, 2001

Related Information

(t) CAA Airworthiness Directive G-2004-0027, dated November 19, 2004, and CAA Airworthiness Directive G-2005-0003, dated January 24, 2005, also address the subject of this AD.

Issued in Burlington, Massachusetts, on August 15, 2006.
Thomas A. Boudreau,
Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.
[FR Doc. E6-13910 Filed 8-22-06; 8:45 am]